

## ABSTRACT

A high precision force and displacement measuring device adapted to operate  
5 in at least two directions, including signal multiplexing scheme providing multiple signal  
channels to be transmitted through a single pick-up plate and sense amplifier, while  
maintaining high isolation between the channels, as well as identical electrical  
response characteristics of all channels. The device may be used in conjunction with a  
movable stage (such as on an optical microscope) to perform mechanical  
10 measurements on Micro Electro-Mechanical Systems (MEMS) devices.